

F1045L

LOW VF SCHOTTKY RECTIFIERS



VOLTAGE: 45 Volts

CURRENT: 10.0 Amperes

TO-277

Marking and Polarity

FEATURES

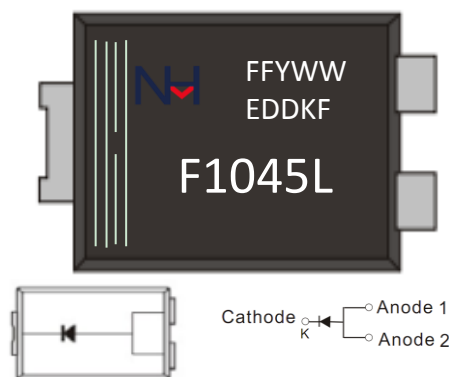
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- For use in low voltage ,high frequency inverters,
- free wheeling ,and polarity protection applications
- High temperature soldering guaranteed:260 C/10 seconds at terminals

MECHANICAL DATA

- **Case:** TO-277 molded plastic body
- **Terminals:** Plated axial leads, solderable per MIL-STD-750,method 2026
- **Mounting Position:** Any
- **Weight:** 0.041ounce, 1.15 grams

TYPICAL APPLICATIONS

- For use in switch power supply ,high frequency inverters ,DC/DC converters,free wheeling ,and PD power supply applications



Remark:

- ①. F1045L=Module No.
- ②. NH=niuhang trademark
- ③. FF=Product line code,According to actual changes
YWW=Data code,According to actual changes
EDDKF=Internal code,According to actual changes
- ④. White band denotes cathode

Maximum Ratings (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	F1045L	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum RMS voltage	V_{RMS}	31.5	V
Maximum DC blocking voltage	V_{DC}	45	V
Maximum average forward rectified current(see fig.1)	$I_{F(AV)}$	10.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)(see fig.5)	I_{FSM}	150	A

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Test Conditions		Symbol	F1045L			Unit
				Min.	Typ.	Max.	
Maximum instantaneous forward voltage(see fig.2) (Note 1)	$T_A=25^{\circ}\text{C}$ $T_A=125^{\circ}\text{C}$	$I_F=10.0\text{ A}$	V_F	--	0.46 0.38	0.49 0.41	V
Maximum instantaneous reverse current at rated DC blocking voltage (see fig.3)(Note 1)	$T_A=25^{\circ}\text{C}$ $T_A=125^{\circ}\text{C}$	$V_R=V_{RRM}$ $V_R=80\%*V_{RRM}$	I_R	--	70 5	150 20	uA mA
Typical junction capacitance(see fig.4)	4V,1MHz		C_J	--	400	--	pF

Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	F1045L	Unit
Operating junction	T_J	-55 to 150	°C
Storage temperature range	T_{STG}	-55 to 150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	35	°C/W
	$R_{\theta JL}$	10	

Note: 1.Pulse width < 300 uS, Duty cycle < 2%

2.Mounted on P.C.B. with 0.2" x 0.2" (5.08 mm x 5.08 mm) copper pad areas

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RATING AND CHARACTERISTIC CURVES

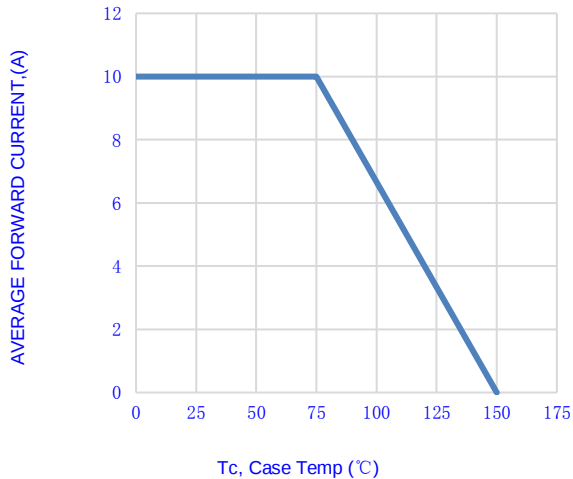


Fig.1- FORWARD CURRENT DERATING CURVE

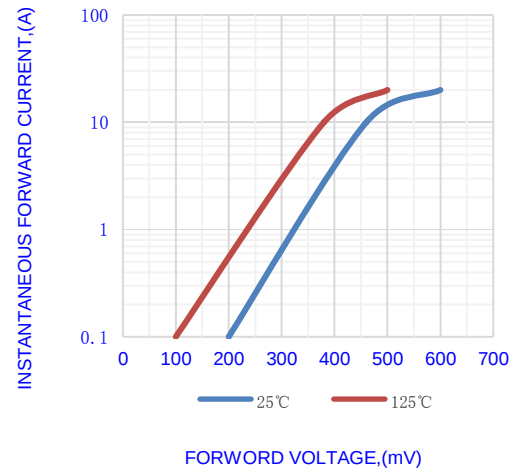


Fig.2-TYPICAL INSTANTANEOUS FORWARD

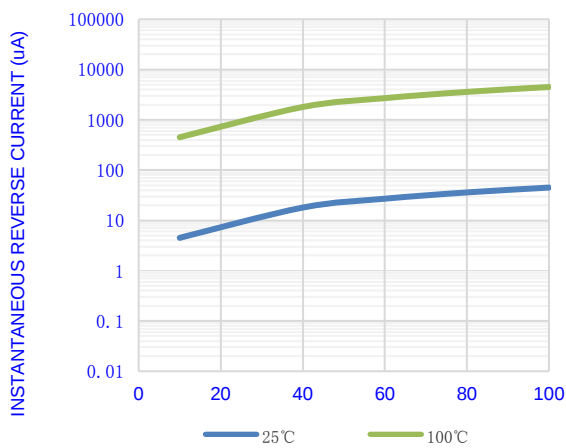


Fig.3-TYPICAL REVERSE CHARACTERISTICS

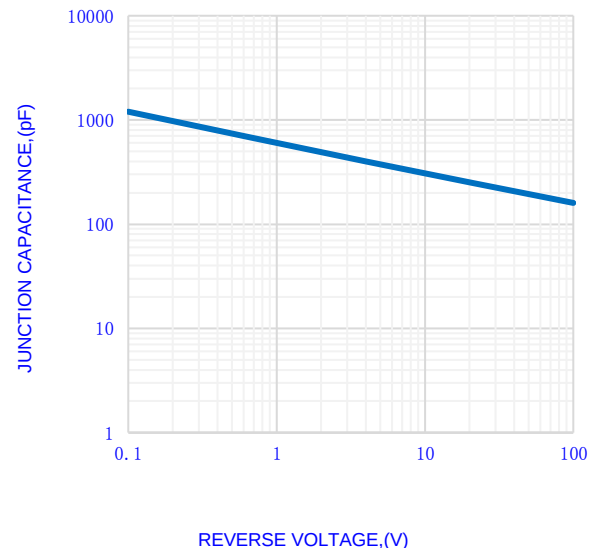


Fig.4- TYPICAL JUNCTION CAPACITANCE

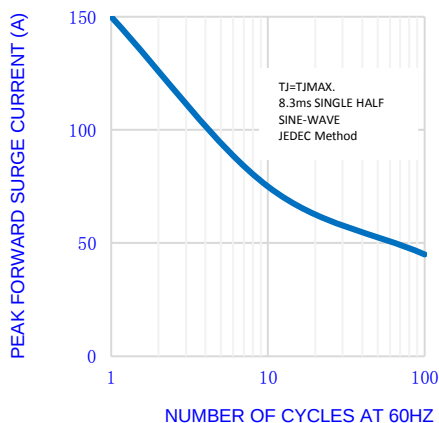


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

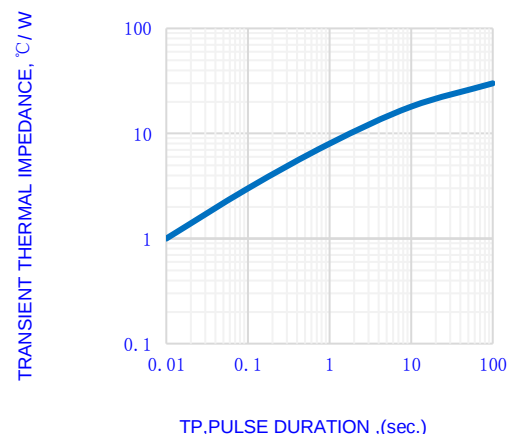


FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

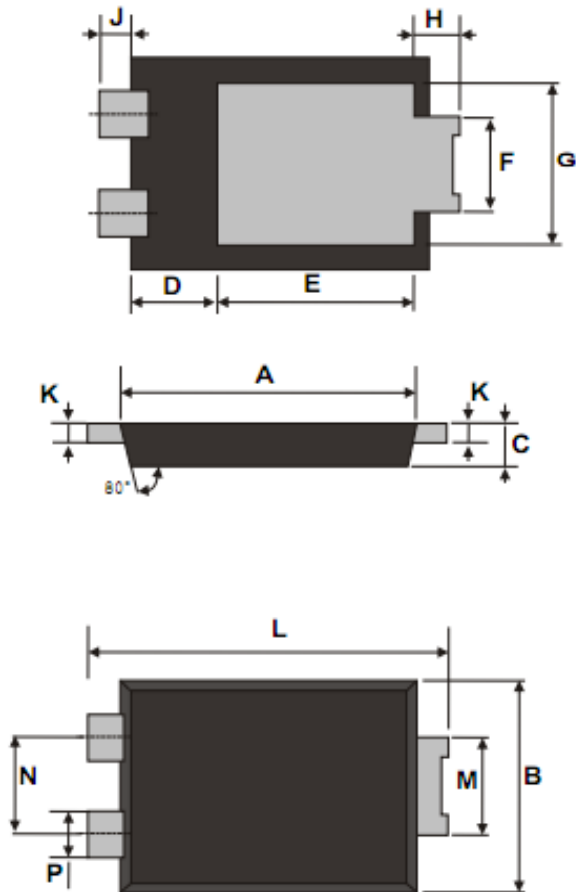
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OUTLINE DRAWINGS

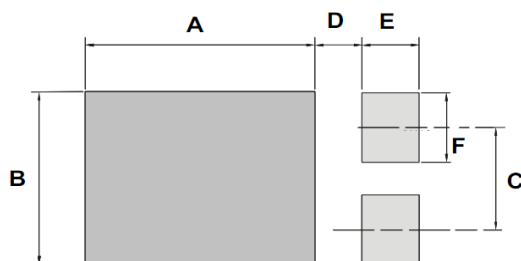
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OUTLINE DIMENSIONS						
DIM	MILLIMETERS			INCHES		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	5.280	-	5.480	0.208	-	0.216
B	3.900	-	4.100	0.154	-	0.161
C	0.095	-	1.250	0.004	-	0.049
D	1.150	-	1.350	0.045	-	0.053
E	3.400	-	3.700	0.134	-	0.146
F	1.750	-	1.950	0.069	-	0.077
G	2.850	-	3.150	0.112	-	0.124
H	0.800	-	0.900	0.031	-	0.035
J	0.510	-	0.610	0.020	-	0.024
K	0.170	-	0.280	0.007	-	0.011
L	6.350	-	6.650	0.250	-	0.262
M	1.750	-	1.950	0.069	-	0.077
N	1.740	-	1.940	0.069	-	0.076
P	0.850	-	0.950	0.033	-	0.037

MOUNTING PAD LAYOUT

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OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	4.650	-	-	0.183	-
B	-	3.500	-	-	0.138	-
C	-	2.100	-	-	0.083	-
D	-	0.970	-	-	0.038	-
E	-	1.180	-	-	0.046	-
F	-	1.400	-	-	0.055	-

Packing Information

Package	Pack	Box Size L×W×H(mm)	Quantity (pcs/box)	Carton Size L×W×H(mm)	Quantity (pcs/carton)
TO-277	T/R	350×350×40	5000	360×360×310	30000

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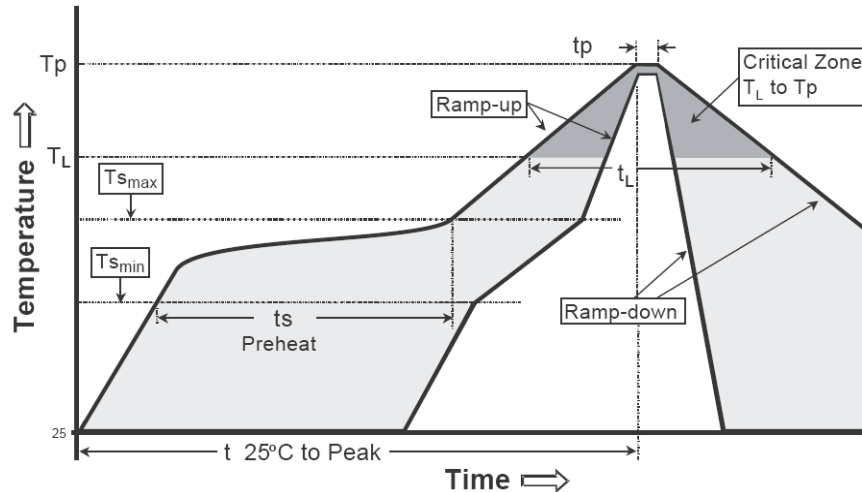
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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